



A taxonomic review of the genus *Dolichurus* Latreille (Hymenoptera: Ampulicidae) from the India with the description of a new species

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General Note



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ABSTRACT

The genus *Dolichurus* Latreille, 1809, is reviewed from India with the description of a new species, namely, *Dolichurus venkataramani* sp. nov. from Kangra Valley, Himachal Pradesh. The species *D. albifacies* Krombein, 1979 and *D. amamiensis* Tsuneki & Iida, 1964 are recorded here for the first time from India. A key to species of the Indian subcontinent is provided. The species *T. gilberti* is reported here for the first time from Arunachal Pradesh.

Key Words: *Dolichurus*, India, taxonomy, new species, new record, key

1. INTRODUCTION

The wasps of the genus *Dolichurus* Latreille, 1809, are commonly called as cockroach wasps. These wasps prey on cockroaches and are generally found on dead woods, leaf litter, or on tree trunks. They are small in size with elongate body and slender appendages. Legs are modified for running with the femora distinctly drumstick-like, their distal third usually fusiform. The genus *Dolichurus* is one of the most primitive groups among sphecoid wasps. Sexual dimorphism is not so strong in this genus. In females, antenna 12 segmented and in males 13 segmented. While females have 6 visible metasomal segments, males usually have only three visible segments. In female metasomal punctures are usually fine, almost impunctate with very sparse delicate punctures, surface glossy but that of male usually coarser.

Latreille (1809) erected the genus *Dolichurus* (Hymenoptera: Ampulicidae) based on the type species *Pompilus corniculus* Spinola, 1808. This is a cosmopolitan genus with about 50 species worldwide (Nearctic 1, Neotropical 2, Palearctic 6, Ethiopian 10, Oriental 27, and Australian 4) (Pulawski, 2018). Seven species are recorded under this genus from the Indian subcontinent of which only two species, namely, *Dolichurus gilberti* Turner, 1912 and *D. taprobanae* Smith, 1869 are recorded from India. In this paper, the genus *Dolichurus* is reviewed from India with the description of a new species, namely, *Dolichurus venkataramani* sp. nov. from Kangra Valley, Himachal Pradesh. The species *D. albifacies* Krombein, 1979 and *D. amamiensis* Tsuneki & Iida, 1964 are recorded here for the first time from India. A key to species of the Indian subcontinent is also provided. The species *T. gilberti* is reported here for the first time from Arunachal Pradesh.

2. MATERIALS AND METHODS

This study is based on the specimens present in the Western Ghat Regional Centre, Zoological Survey of India, Kozhikode, India, collected from various localities of India. The specimens were studied and photographed by using a Leica Stereo microscope model LEICA M 205A with LEICA DFC 500 Camera. All the specimens were properly preserved and added to the 'National Zoological Collections' of the Western Ghat Regional Centre, Zoological Survey of India, Kozhikode (ZSIK).

Abbreviations used for the Museums: BMNH — The Natural History Museum, London SW7 5BD, England; OXUM — Hope Department of Zoology, Oxford, England; USNM — National Museum of Natural History, Washington, D.C., U.S.A.; ZSIK — Western Ghat Regional Centre, Zoological Survey of India, Kozhikode, India.

Abbreviations used for the terms: F = Flagellar segment; OOL = Ocellocular length; POL = Posterior ocellar length; S = Metasomal sterna; T = Metasomal terga.

3. RESULTS

Genus *Dolichurus* Latreille, 1809

Dolichurus Latreille, 1809: 387. Type species: *Pompilus corniculus* Spinola, 1808, designated by Latreille, 1810: 438.

Thyreosphex Ashmead, 1904: 282. Type species: *Thyreosphex stantoni* Ashmead, 1904, by monotypy.

Diagnosis: Notauli well developed, complete to posterior scutal margin or nearly so; propodeal outline rather sharply bent in profile; hind wing jugal lobe present; fore wing media diverging after cu-a; hind wing media diverging before cu-a; metasoma sessile; antennal bases covered by a median frontal platform; metasternum somewhat emarginate posteriorly but not Y-shaped; petiole inserted above and somewhat after hind coxae.

Distribution: Cosmopolitan.

Key to the Indian subcontinent *Dolichurus* Latreille

(Modified from Tsuneki, 1992)

1. Female. 2

— Male. 8

2. T4-T6 reddish brown. *gilberti* Turner, 1912

— T4-T6 black. 3

3. Pronotum with distinct anterior bordering carina. *amamiensis* Tsuneki & Iida, 1964

— Pronotum without distinct anterior bordering carina, or it is weak and quite indistinct among similar parallel striae. 4

4. Sternaulus absent on mesopleuron. 5
— Sternaulus present on mesopleuron. 6
5. Vertex flat; frons more closely sculptured, adjacent to ocelli with larger subcontiguous sculptures; mandible except tip and fore tibia dark. **lankensis** Krombein, 1979
— Vertex arched; frons more delicately and sparsely sculptured, adjacent to ocelli with small sculptures; mandible and fore tibia beneath light red. **aridulus** Krombein, 1979
6. Clypeus with median carina till near apex. **taprobanae** Smith, 1869
— Clypeus without median carina (Fig. 3). 7
7. Black long macrochaetae present at normal positions of clypeus, frons, pronotum and scutellum; clypeus black, not white maculated. **silvicola** Krombein, 1979
— Black long macrochaetae absent at normal positions of clypeus, frons, pronotum and scutellum; clypeus maculated with white. **albifacies** Krombein, 1979
8. Pronotum with distinct anterior bordering carina. **amamiensis** Tsuneki & Iida, 1964
— Pronotum without distinct anterior bordering carina, or it is weak and quite indistinct among similar parallel striae. 9
9. Clypeus maculated with white. **albifacies** Krombein, 1979
— Clypeus black, at most apical margin brownish. 10
10. Sternaulus distinct on mesopleuron. **silvicola** Krombein, 1979
— Sternaulus evanescent or lacking on mesopleuron. 11
11. Episternum of mesopleuron smooth and glossy with scattered tiny punctures (Figs. 32 & 39). 12
— Episternum of mesopleuron rugulose-reticulate. 13
12. Punctures of T1-T3 mostly separated by the diameter of a puncture (Fig. 33)..... **taprobanae** Smith, 1869
— Punctures of T1-T3, especially on T1, very scattered and at median region they separated by more than 2 to 3x the diameter of a puncture (Fig. 40)..... **venkataramani** sp. nov.
13. Vertex with small punctures, mostly separated from each other by the diameter of a puncture; mid and hind basitarsi much paler than the remaining tarsal segments; rugulose reticulations of front and mesopleuron of smaller mesh. **aridulus** Krombein, 1979
— Vertex with very scattered fine punctures; mid and hind basitarsi not conspicuously paler than the remaining tarsal segments; rugulose reticulations of front and mesopleuron of coarser mesh. **lankensis** Krombein, 1979

1. *Dolichurus albifacies* Krombein, 1979

Dolichurus albifacies Krombein, 1979: 18, ♀, ♂. Holotype: ♀, Sri Lanka: Kandy district, Kandy, Udawattakele Sanctuary (USNM).

Diagnosis: ♀. Frontal platform broad, twice as broad as high; absence of macrochaetae; clypeus without median carina; F1 0.53x combined lengths of next two segments; front with small punctures separated by less than the diameter of a puncture, median keel evanescent; pronotum with a few close, delicate transverse wrinkles on anterior declivity; mesopleuron with scattered small punctures, sternaulus present.

Colour: Black, the following white: mandible except base and apex, palpi, irregular band at apex of clypeus (Fig. 3), outer margin of frontal platform (Fig. 2), anterior half of tegula, and mid and hind tibial spurs. Light red: apex of mandible, inner surface of fore tibia and lower surface of fore tarsi; rest of tarsi brownish. Vestiture silvery. Wings hyaline.

Length: 5.6 mm.

Material examined: INDIA: Karnataka, Kodagu district, Kandikakki, 1♀, 16.x.2016, Coll. P. Girish Kumar, ZSIK Regd. No. ZSI/WGRC/I.R.-INV.11498.

Distribution: India (**new record**): Karnataka. *Elsewhere:* Sri Lanka (Krombein, 1979).

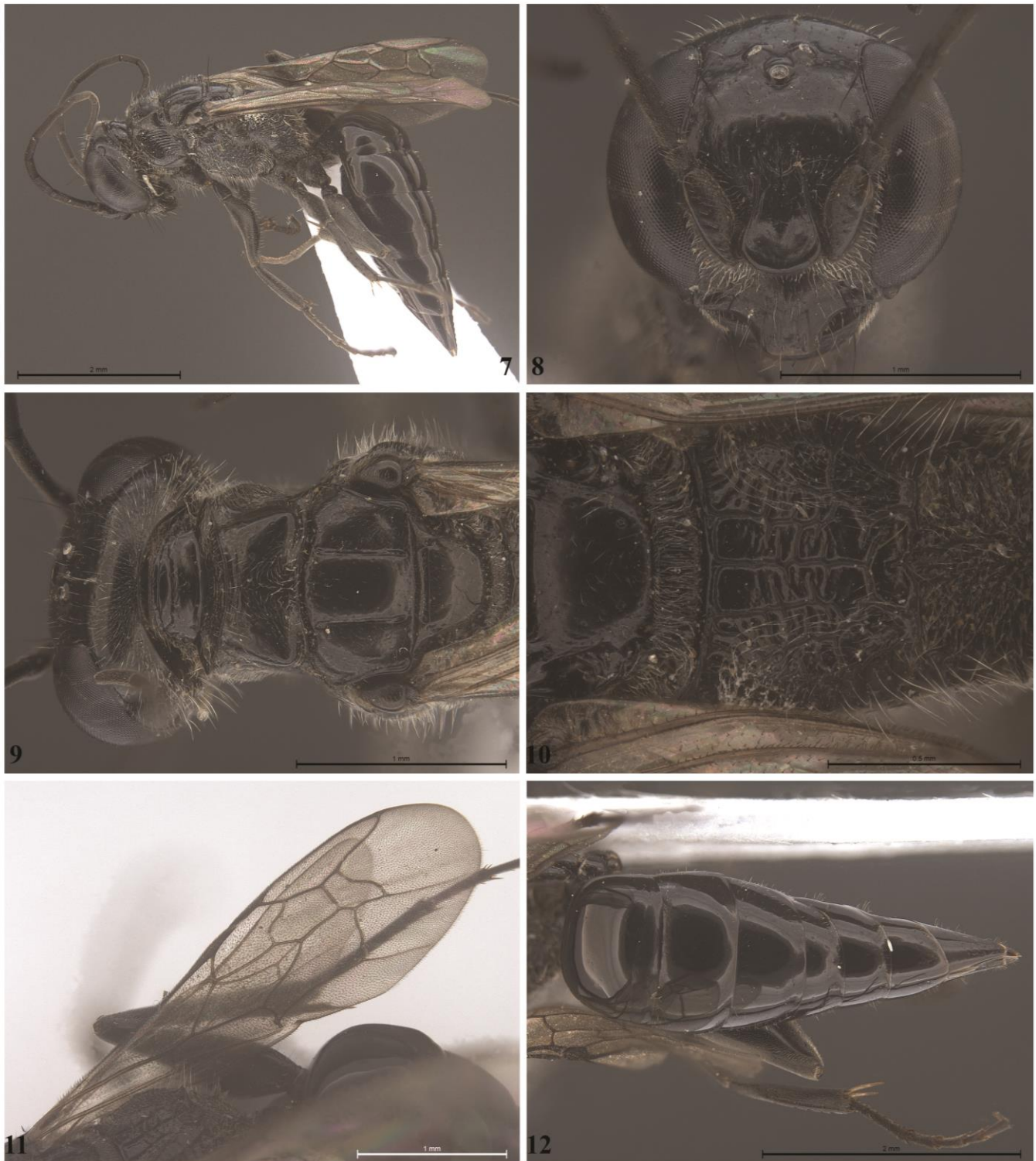
Plate 1



Figs. 1-6. *Dolichurus albifacies* Krombein, female. 1: Body in profile. 2: Head, in frontal view. 3: Head, lower part showing clypeus. 4: Antenna. 5: Head and mesosoma, dorsal view. 6: Mesosoma, lateral view.

2. *Dolichurus amamiensis* Tsuneki & Iida, 1964

Plate 2



Figs. 7-12. *Dolichurus amamiensis* Tsuneki & Iida, female. 7: Body in profile. 8: Head, in frontal view. 9: Head and mesosoma, dorsal view. 10: Scutellum, metanotum and propodeum, in dorsal view. 11: Fore wing. 12: Metasoma.

Plate 3



Figs. 13-19. *Dolichurus amamiensis* Tsuneki & Iida, male. 13: Body in profile. 14: Head, frontal view. 15: Clypeus. 16: Antenna. 17: Head and mesosoma, dorsal view. 18: Mesosoma, lateral view. 19: Metasoma, dorsal view.

Dolichurus amamiensis Tsuneki & Iida, 1964: 41, ♀. Holotype: ♀, Japan: Amami Oshima Island: Koniya (USNM).

Dolichurus puliensis Tsuneki, 1967: 10, ♂. Holotype: ♂, Taiwan: Nantou Prefecture: Puli (USNM). Synonymized with *Dolichurus amamiensis* by Tano & Tsuneki, 1970: 40.

Diagnosis: ♀. Mesopleuron rugulose-reticulate, with sternaulus; upper front and vertex with sparse, delicate punctation; pronotum with distinct anterior bordering carina; F1 0.62x combined lengths of next two segments; interocular distance at vertex 1.27x the length of F1; clypeus with a weak median carina on basal half.

Colour: ♀. Black, tibial spurs light brown. Vestiture silvery, except macrochaetae black. Wings evenly, slightly infumated.

Diagnosis: ♂. Mesopleuron irregularly and finely rugulose, with weak sternaulus; most of front delicately rugulose-reticulate, laterally the rugulae tending to be irregularly longitudinal; vertex glossy with scattered small punctures; pronotum with weak anterior bordering carina; interocular distance at vertex 1.30x the length of F1; clypeus with a distinct median carina ending in a small apical tooth.

Colour: ♂. Black, apex of frontal platform ivory, posterolateral tubercle on pronotum and tibial spurs white, mandible at apex brown, tibiae and tarsi medium brown to brownish yellow. In some specimens, ventral surface of antenna pale brown. Vestiture whitish. Wings almost hyaline.

Length: ♀, 5.8 mm; ♂, 4 mm.

Material examined: INDIA: Kerala, Kasaragod district, Panathady, 1♀, 29.xi.2017, Coll. P.M. Rajan, ZSIK Regd. No. ZSI/WGRC/I.R.-INV.11499; Kannur district, Kannapuram mangroves, 2♂♂, 29-30.iv.2018, Coll. C. Chares, ZSIK Regd. Nos. ZSI/WGRC/I.R.-INV.11500 & 11501; Kozhikode district, Kakkadampoyil, 2♂♂, 21.i.2018, Coll. George Mathew, ZSIK Regd. Nos. ZSI/WGRC/I.R.-INV.11502 & 11503; Kottayam district, Pala, Cherpunkal, 1♂, 29.iv.2018, Coll. Tessa Rajan, ZSIK Regd. No. ZSI/WGRC/I.R.-INV.11504. Goa, North Goa district, Mhadei Wildlife Sanctuary, 2♂♂, 15.v.2018, Coll. P. Girish Kumar, ZSIK Regd. Nos. ZSI/WGRC/I.R.-INV.11505 & 11506.

Distribution: India (**new record**): Goa, Kerala. *Elsewhere:* China; Japan; Malaysia; Philippines; Sri Lanka; Taiwan; Thailand; Vietnam (Tsuneki & Iida, 1964; Tsuneki, 1967, 1968, 1974, 1976, 1982; Tano, 1969, 1972; Tano & Tsuneki, 1970; Murota, 1973; Bohart & Menke, 1976; Krombein, 1979; Yamane & Ikudome, 1990; Tsuneki et al, 1992; Porter et al, 1999; Yamane et al, 1999; Hua, 2006; Terayama & Yano, 2006; Suda, 2013; Dollfuss, 2017).

3. *Dolichurus gilberti* Turner, 1912

Dolichurus gilberti Turner, 1912: 365, ♀, ♂. Holotype: ♀, India: Meghalaya ["Assam"], Shillong (BMNH).

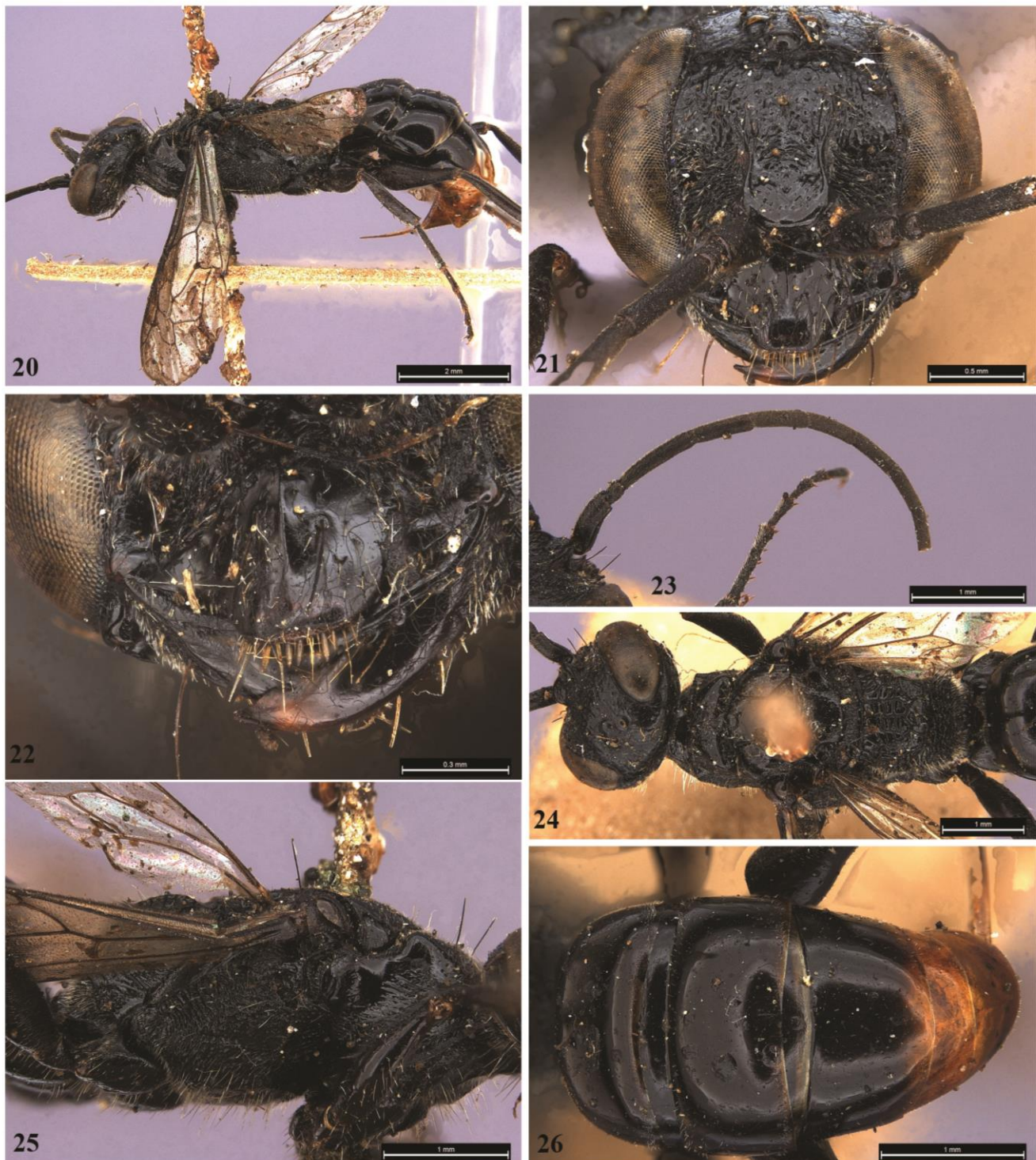
Diagnosis: ♀. T4-T6 reddish brown; frontal platform black; F1 1.5x as long as F2; interocular distance at vertex as long as the combined length of F1 and F2; frons longitudinally rugoso-striate; vertex shining, with sparse fine punctures; clypeus with median carina not reaching apex; mesopleuron rugulose; dorsal side of propodeum wider than long, with five longitudinal carinae.

Length: 9.5 mm.

Material examined: INDIA: Arunachal Pradesh, Lower Subansiri district, Ziro, 1♀, 13.v.1966, Coll. A.N.T. Joseph, ZSIK Regd. No. ZSI/WGRC/I.R.-INV.11507.

Distribution: India: Arunachal Pradesh (**new record**), Karnataka, Meghalaya. (Turner, 1912; Dollfuss, 2017).

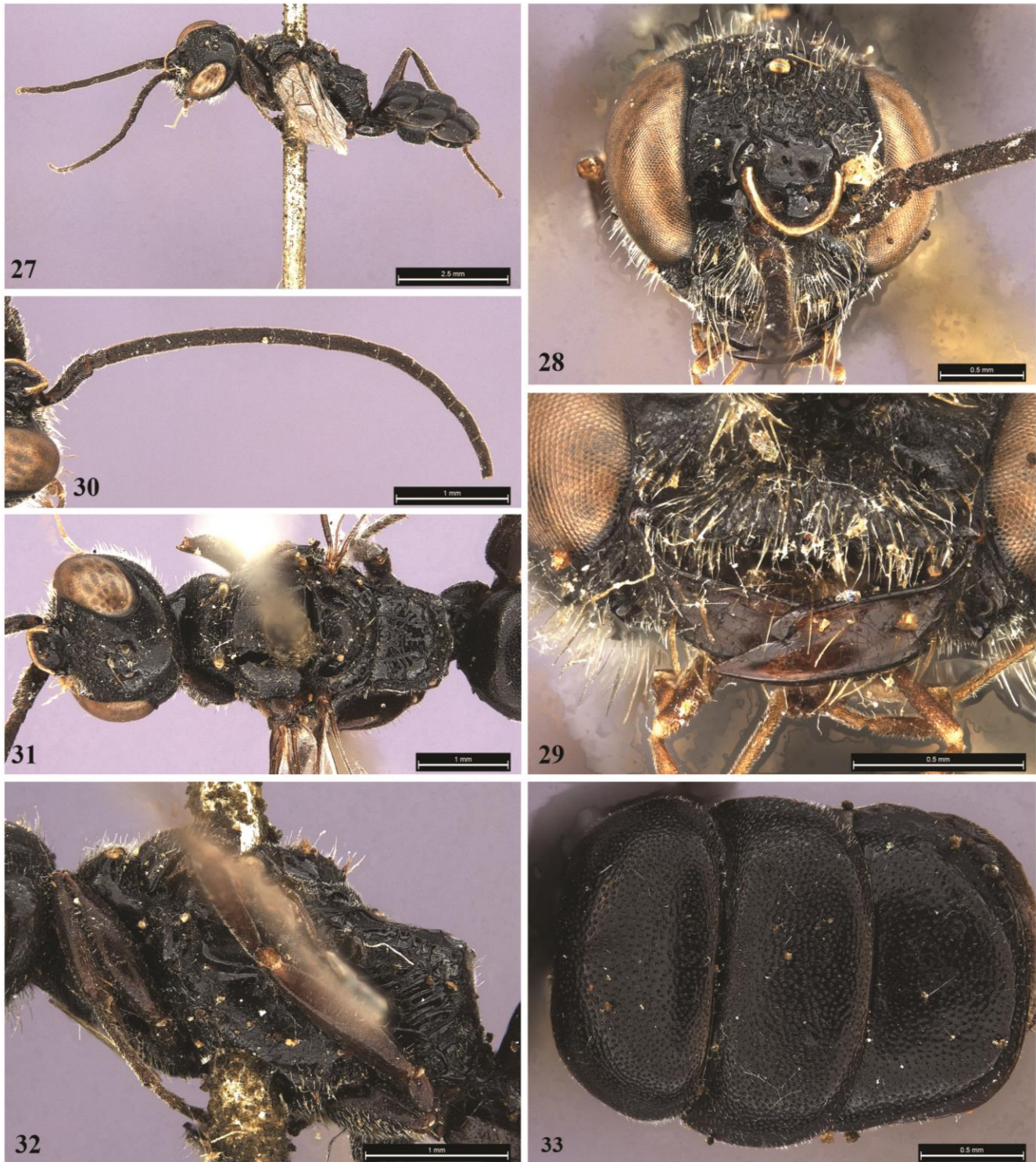
Plate 4



Figs. 20-26. *Dolichurus gilberti* Turner, female. 20: Body in profile. 21: Head, frontal view. 22: Clypeus. 23: Antenna up to F7. 24: Head and mesosoma, dorsal view. 25: Mesosoma, lateral view. 26: Metasoma, dorsal view.

4. *Dolichurus taprobanae* Smith, 1869

Plate 5



Figs. 27-33. *Dolichurus taprobanae* Smith, male. 27: Body in profile. 28: Head, in frontal view. 29: Clypeus and mandibles. 30: Antenna up to F9. 31: Head and mesosoma, dorsal view. 32: Mesosoma, lateral view. 33: Metasoma, dorsal view.

Dolichurus taprobanae Smith, 1869: 304, ♂, actually ♀ (Turner, 1912:365). Holotype: ♀, Sri Lanka: no specific locality (BMNH).

Dolichurus bipunctatus Bingham, 1896: 438, ♂. Holotype: ♂. Burma: Pegu Hills (BMNH). Synonymized with *Dolichurus taprobanae* by Krombein, 1979: 14.

Dolichurus [sic] *clavipes* Cameron, 1897c:18, ♂, junior primary homonym of *Dolichurus clavipes* Dahlbom, 1829. Holotype: ♂, India: Bengal: Barrackpore (OXUM). Synonymized with *Dolichurus taprobanae* by Krombein, 1979: 14.

Dolichurus reticulatus Cameron, 1899: 56, ♂. Holotype or syntypes: ♂, India: Meghalaya ['Assam']: Khasia Hills (OXUM). Synonymized with *Dolichurus bipunctatus* by R. Turner, 1912: 364.

Diagnosis: ♂. Pronotum without anterior bordering carina; sternaulus evanescent on mesopleuron; clypeus with strong median carina; front ruguloso-reticulate; F3-F9 each with a longer erect seta in middle beneath; frontal platform with apical margin rounded, surface concave and smooth, sides thickened, three-fourths as long as basal width; vertex and episternum smooth and glossy with scattered tiny punctures; T1-T3 with moderately large punctures.

Colour: Black, with mandible partly, fore tibia and tarsus, tegula, mid and hind tibia and tarsus reddish brown; tibial spurs light brown to white; narrow apical margin of frontal platform (evanescent in some specimens) and pronotal tubercles white; vestiture silvery; wings clear hyaline.

Length: 5-5.5 mm.

Material examined: INDIA: Himachal Pradesh, Kangra district, Palampur, 1♂, 3.vii.1965, Coll. V.K. Gupta & Party, ZSIK Regd. No. ZSI/WGRC/I.R.-INV.11522; Sikkim, 1♂, May 1912, exact collection locality & name of collector unknown, ZSIK Regd. No. ZSI/WGRC/I.R.-INV.11523.

Distribution: India: Assam, Bihar: Pusa, Himachal Pradesh: Kangra Valley, Meghalaya, Nicobar Islands, Sikkim, Uttarakhand, West Bengal: Barackpore. *Elsewhere:* China; Indonesia: Sumatra; Laos; Malaysia; Myanmar; Sri Lanka; Thailand; Vietnam (Bingham, 1896, 1897; Cameron, 1899; Rothney, 1903; Turner, 1912; Maidl, 1925; Krombein, 1979; Pu, 1986; Dollfuss, 2017).

5. *Dolichurus venkataramani* sp. nov.

Holotype ♂: Length 5.5 mm. Black; with ferruginous red to reddish brown markings: apex of mandible, antenna, legs except fore caxa blackish brown, tegula, outer margin of T3; blackish brown markings: frontal platform except base black and apex ivory, T1; ivory markings: apical margin of frontal platform, spot on pronotal tubercles. Vestiture silvery. Wings clear hyaline with veins pale brown.

Head: Head moderately arched above the eyes; clypeus (Fig. 36) with a median carina ending in a tooth on margin; frontal platform with apical margin rounded, surface concave and smooth, sides thickened, 1.19x as long as broad; front (Fig. 35) with rugulose-reticulations of relatively coarser mesh, polished area just in front of the anterior ocellus; POL 0.62x OOL; inner eye margins almost parallel except emarginate at middle; interocular distance at vertex 1.78x as long as F1; antenna (Fig. 37) with F1: F2: F3 = 27: 29: 29; F3-F10 slightly swollen in middle on inner surface, the swelling bearing a longer erect seta; vertex with scattered tiny punctures.

Mesosoma: Pronotum (Fig. 38) without distinct anterior bordering carina, but anteriorly with weak, fine transverse carinae, posterior surface shallowly depressed except for low, rounded lateral tubercle; lateral pronotal surface smooth, with scattered fine punctures; mesoscutum, scutellum and mesopleuron with small punctures separated by more than the diameter of puncture; sternaulus evanescent (Fig. 39); metanotum with regular longitudinal carinae; enclosure of propodeum subrectangular, surface with irregular, mostly transverse rugulae; lamella between dorsal and posterior surfaces of propodeum straight, evenly developed; a weak, blunt lateral tooth halfway down posterior surface of propodeum; lateral surface of propodeum with moderately close, oblique rugulae.

Metasoma: Punctures of T1-T3 (Fig. 40), especially on T1, very scattered and at median region they separated by more than 2 to 3x the diameter of a puncture; anterior vertical surface of T1 almost impunctate; apex of third tergum moderately depressed.

Female: Unknown.

Material examined: Holotype ♂, INDIA: Himachal Pradesh, Kangra Valley, August-September 1899, Alt 4500 ft, Coll. Dudgeon, ZSIK Regd. No. ZSI/WGRC/I.R.-INV.11524. Paratypes 11♂♂, same collection data as that of holotype, ZSIK Regd. Nos. ZSI/WGRC/I.R.-INV.11525-11535.

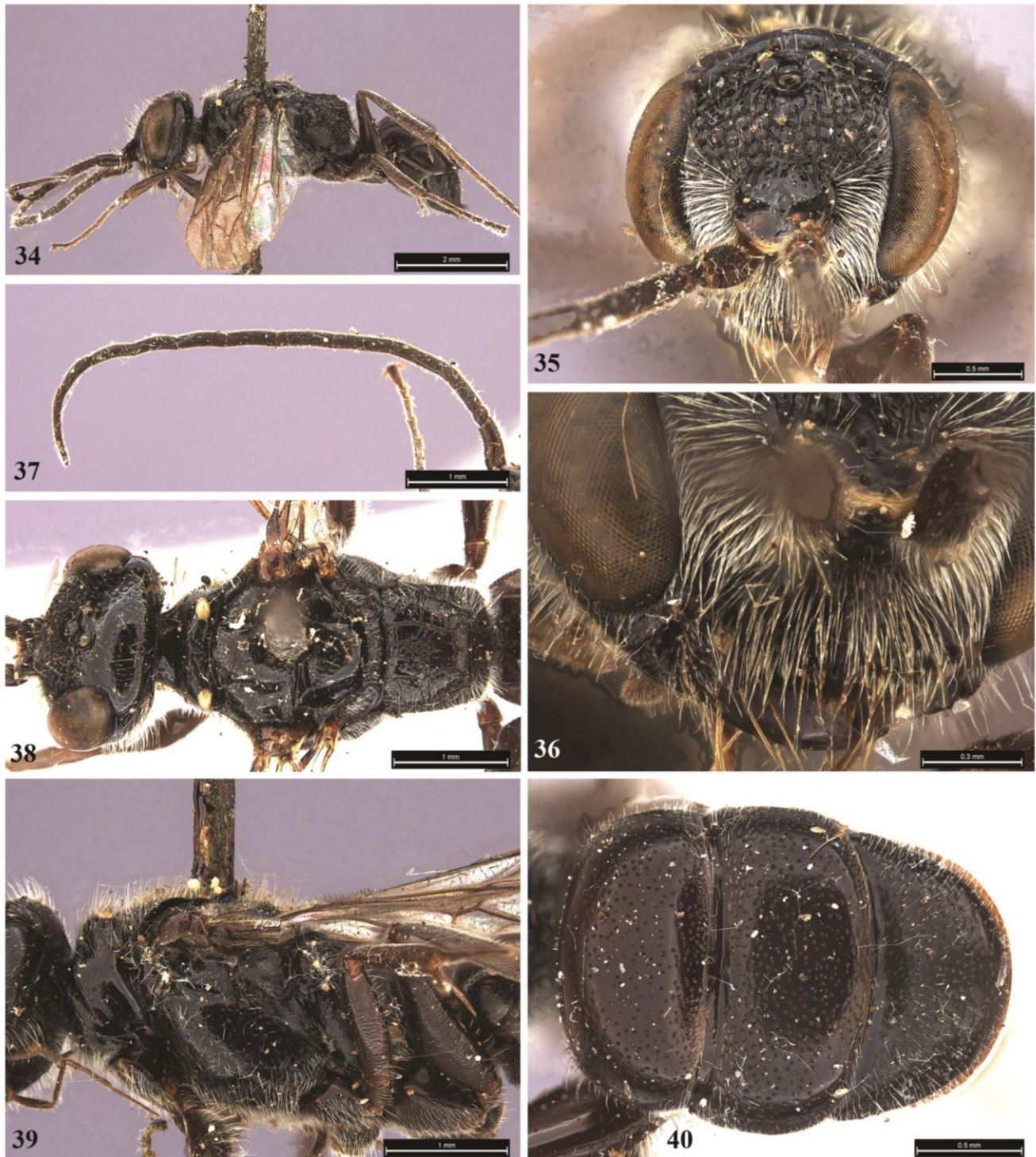
Distribution: India: Himachal Pradesh.

Etymology: The species is named after Dr. K. Venkataraman, former Director of the Zoological Survey of India and a well known marine biologist for his keen interest and support to my studies.

Discussion: This new species comes close to *D. taprobanae* but clearly differs in the punctuation of abdominal tergites. In this new species, punctures of T1-T3, especially on T1, very scattered and at median region they separated by more than 2 to 3x the

diameter of a puncture (in *D. taprobanae*, punctures of T1-T3 mostly separated by the diameter of a puncture). T1 blackish brown in the new species (in *D. taprobanae*, T1 black).

Plate 6



Figs. 34-40. *Dolichurus venkataramani* sp. nov., Holotype female. 34: Body in profile. 35: Head, frontal view. 36: Lower portion of head showing clypeus. 37: Antenna. 38: Head and mesosoma, dorsal view. 39: Mesosoma lateral view. 40: Metasoma, dorsal view.

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